WHAT IS CLAIMED IS:

1. A chimeric polynucleotide comprising a nucleic acid sequence encoding an erythropoietin polypeptide attached to a 5'-UTR sequence as set forth by SEQ ID NO:6 or 7.

2. The chimeric polynucleotide of claim 1, wherein said nucleic acid sequence includes an adenine as part of a guanine-guanine-adenine triplet encoding glycine at position 2 of SEQ ID NO:10.

3. The chimeric polynucleotide of claim 1, wherein the chimeric polynucleotide further includes at least 10 and no more than 15 non-translatable nucleic acids attached to a 3' end of said nucleic acid sequence.

4. The chimeric polynucleotide of claim 1, wherein said nucleic acid sequence further includes 12 non-translatable nucleic acids attached to a 3' end of said nucleic acid sequence.

5. The chimeric polynucleotide of claim 1, wherein said nucleic acid sequence is set forth by SEQ ID NO:11.

6. The chimeric polynucleotide of claim 1, wherein said nucleic acid sequence is set forth by SEQ ID NO:12.

7. A nucleic acid construct comprising the chimeric polynucleotide of claim 1.

8. The nucleic acid construct of claim 7, further comprising a promoter for directing expression of the chimeric polynucleotide in eukaryotic cells.

9. The nucleic acid construct of claim 7, further comprising a promoter for directing expression of the chimeric polynucleotide in mammalian cells.

10. The nucleic acid construct of claim 9, wherein said promoter is selected from the group consisting of SV40 promoter, CMV promoter, adenovirus major late promoter, Rous sarcoma virus promoter.

11. The nucleic acid construct of claim 8, further comprising a dihydrofolate reductase expression cassette positioned under a control of a thymidine kinase promoter.

12. A eukaryotic cell culture genetically modified to produce at least 150 international units of erythropoietin per milliliter medium per 48 hours.

13. The cell culture of claim 12, wherein said cells are of a mammalian origin.

14. A method of increasing blood erythropoietin level in an individual in need thereof comprising expressing in cells of the individual a polynucleotide including a nucleic acid sequence encoding an erythropoietin polypeptide attached to a 5'-UTR sequence as set forth by SEQ ID NO:6 or 7 to thereby increase blood erythropoietin level in the individual.

15. The method of claim 14, wherein said nucleic acid sequence includes an adenine as part of a guanine-guanine-adenine triplet encoding glycine at position 2 of SEQ ID NO:10.

16. The method of claim 14, wherein said polynucleotide further includes at least 10 and no more than 15 non-translatable nucleic acids attached to a 3' end of said nucleic acid sequence.

17. The method of claim 14, wherein said polynucleotide further includes 12 non-translatable nucleic acids attached to a 3' end of said nucleic acid sequence.

18. The method of claim 14, wherein said nucleic acid sequence is set forth by SEQ ID NO:11.

19. The method of claim 14, wherein said nucleic acid sequence is set forth by SEQ ID NO:12.

20. The method of claim 14, wherein said cells are *ex-vivo* transfected with a mammalian expression vector including said polynucleotide positioned under the control of a mammalian promoter.

21. The method of claim 14, wherein said expressing is effected by providing to the individual a mammalian expression vector including said polynucleotide positioned under the control of a mammalian promoter.